

Household and similar electrical appliances — Safety —

Part 2-79: Particular requirements for high pressure cleaners and steam cleaners

The European Standard EN 60335-2-79:2004, incorporating
amendments A1:2006 and A2:2007, has the status of a British Standard

ICS 97.080

National foreword

This British Standard is the UK implementation of EN 60335-2-79:2004, incorporating amendments A1:2006 and A2:2007. It was derived by CENELEC from IEC 60335-2-79:2002, incorporating amendments 1:2004 and 2:2007. It supersedes BS EN 60335-2-79:1998 which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment 1 is indicated in the text by **A1** **A1**.

The UK participation in its preparation was entrusted by Technical Committee CPL/61, Safety of household electrical appliances, to Subcommittee CPL/61/10, Floor treatment machines (Industrial).

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Amendments issued since publication

Amd. No.	Date	Comments
16461	31 August 2006	See national foreword
17380	31 October 2007	See national foreword

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 24 August 2004

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ISBN 978 0 580 60313 6

English version

**Household and similar electrical appliances –
Safety
Part 2-79: Particular requirements for high pressure cleaners
and steam cleaners
(IEC 60335-2-79:2002, modified)**

Appareils électrodomestiques et
analogues –
Sécurité
Partie 2-79: Règles particulières
pour les appareils de nettoyage
à haute pression et les appareils
de nettoyage à vapeur
(CEI 60335-2-79:2002, modifiée)

Sicherheit elektrischer Geräte für den
Hausgebrauch und ähnliche Zwecke
Teil 2-79: Besondere Anforderungen
für Hochdruckreiniger und Dampfreiniger
(IEC 60335-2-79:2002, modifiziert)

This European Standard was approved by CENELEC on 2004-03-16. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 61J/128/FDIS, future second edition of IEC 60335-2-79, prepared by SC 61J of the IEC Technical Committee 61, was submitted to the IEC-CENELEC parallel vote.

As a result of the Kista meeting of CENELEC TC 61 in May 2002, a draft amendment prAA containing the relevant existing common modifications was submitted to the formal vote.

The texts of the FDIS and the prAA were approved by CENELEC as a new edition of EN 60335-2-79 on 2004-03-16.

This European Standard replaces EN 60335-2-79:1998 + A11:1999 + A1:2001.

The following dates are applicable:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2005-03-01
- date on which national standards
conflicting with the EN have to be withdrawn (dow) 2007-04-01

This part 2 has to be used in conjunction with EN 60335-1, Household and similar electrical appliances – Safety – Part 1: General requirements. It was established on the basis of the 2002 edition of that standard. Amendments and revisions of Part 1 have also to be taken into account and the dates when such changes become applicable will be stated in the relevant amendment or revision of Part 1.

This part 2 supplements or modifies the corresponding clauses of EN 60335-1, so as to convert it into the European Standard: Safety requirements for electric high pressure cleaners and steam cleaners.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

NOTE 1 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.;
- subclauses, notes and annexes that are additional to those in the IEC standard are prefixed with the letter Z.

NOTE 2 The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

There are no special national conditions causing a deviation from this European Standard, other than those listed in Annex ZA to EN 60335-1.

There are no national deviations from this European Standard, other than those listed in Annex ZB to EN 60335-1.

Introduction

An investigation by CENELEC TC 61 has shown that all risks from products within the scope of this standard are fully covered by the Low Voltage Directive, 73/23/EEC. For products having mechanical moving parts, a risk assessment in accordance with the Machinery Directive, 98/37/EC, has shown that the risks are mainly of electrical origin and consequently this directive is not applicable. However, the relevant essential safety requirements of the Machinery Directive are covered by this standard together with the principal objectives of the Low Voltage Directive.

Endorsement notice

The text of the International Standard IEC 60335-2-79:2002 was approved by CENELEC as a European Standard with agreed common modifications.

Foreword to amendment A1

The text of amendment 1:2004 to IEC 60335-2-79:2002, prepared by the IEC Technical Committee 61, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A1 to EN 60335-2-79:2004 on 2006-03-01.

The following dates are applicable:

- latest date by which the amendment has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2007-03-01
- date on which national standards
conflicting with the amendment have to be withdrawn (dow) 2009-03-01

This amendment supplements or modifies the corresponding clauses of EN 60335-2-79:2004.

As a consequence of endorsing amendment 1:2004 to IEC 60335-2-79:2002, the common modifications in EN 60335-2-79:2004 are replaced by IEC text and therefore withdrawn.

There are no special national conditions causing a deviation from this amendment.

There are no national deviations from this amendment.

Endorsement notice

The text of amendment 1:2004 to the International Standard IEC 60335-2-79:2002 was approved by CENELEC as an amendment to the European Standard without any modification.

Foreword to amendment A2

The text of document 61J/252/FDIS, future amendment 2 to IEC 60335-2-79:2002, prepared by SC 61J, Electrical motor-operated cleaning appliances for industrial use, of IEC TC 61, Safety of household and similar electrical appliances, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A2 to EN 60335-2-79:2004 on 2007-08-01.

The following dates are applicable:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2008-05-01
- date on which national standards conflicting with the amendment have to be withdrawn (dow) 2010-08-01

This amendment supplements or modifies the corresponding clauses of EN 60335-2-79:2004.

There are no special national conditions causing a deviation from this amendment.

There are no national deviations from this amendment.

Endorsement notice

The text of amendment 2:2007 to the International Standard IEC 60335-2-79:2002 was approved by CENELEC as an amendment to the European Standard without any modification.

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INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-79: Particular requirements for high pressure cleaners and steam cleaners

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of high pressure cleaners for household, industrial and commercial use having a pressure not less than 2,5 MPa and not more than 25 MPa and with an input to the drive for the high pressure pump not exceeding 10 kW, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

[A1] It also applies to industrial and commercial steam cleaners having a water container with a capacity not exceeding 1 000 l, a **rated pressure** not exceeding 3,2 MPa and a product of capacity and **rated pressure** not exceeding 300. **[A1]**

It is also applicable to appliances making use of other forms of energy for the motor, but it is necessary that their influence is taken into consideration.

As far as it is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in and around the home. However, in general, it does not take into account

- the use of appliances by young children or infirm persons without supervision,
- playing with the appliance by young children.

NOTE 101 Attention is drawn to the fact that

- for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements may be necessary;
- in many countries additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour, the national water supply authorities and similar authorities.

NOTE 102 This standard does not apply to

- appliances that are incorporated in process equipment;
- appliances intended to be used in locations where special conditions prevail, such as the presence of corrosive or explosive atmosphere (vapour or gas);
- audio, video and similar electronic apparatus (IEC 60065);
- appliances for medical purposes (IEC 60601);
- hand-held motor-operated electric tools (IEC 60745);
- personal computers and similar equipment (IEC 60950);
- transportable motor-operated electric tools (IEC 61029);
- steam cleaners for household use only (IEC 60335-2-54).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60364-1, *Electrical installations of buildings – Part 1: Fundamental principles, assessment of general characteristics, definitions*

IEC 61558-2-3, *Safety of power transformers, power supply units and similar – Part 2-3: Particular requirements for ignition transformers for gas and oil burners*

Ⓐ IEC 60704-1, *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 1: General requirements*

ISO 5349 (all parts), *Mechanical vibration – Measurement and evaluation of human exposure to hand-transmitted vibration* Ⓐ

3 Definitions

This clause of Part 1 is applicable except as follows.

3.1.9 Replacement:

normal operation

operation of the appliance under the following conditions

The appliance is supplied at **rated voltage** and operated at **rated flow** and **rated pressure** with the nozzle and hose specified by the manufacturer fitted to it; all strainers and filters are in a clean operating condition and the **unloader valve** is set to the **rated pressure**. The **water heater**, if fitted, is operated at maximum power.

Ⓐ Power outlets for accessories are loaded with a resistive load in accordance with the marking. Ⓐ

3.101

unloader valve

pressure operated valve which, when the pump pressure exceeds the preset value, returns the excess fluid to the inlet system. In addition it bypasses the total pump flow at reduced pressure when its outlet flow is cut off

3.102

safety valve

pressure operated valve which, when the pump or steam cleaner pressure exceeds the preset value, returns the excess fluid or steam to the inlet system or into the atmosphere

3.103

rated pressure

maximum pressure at the pump or at the steam cleaner assigned to the appliance by the manufacturer

3.104

permissible pressure

limiting pressure up to which an appliance and/or parts of the appliance can be operated without impairing its integrity

3.105

rated flow

flow at **rated pressure** at the nozzle assigned to the appliance by the manufacturer

3.106

water heater

means of heating water or **cleaning agent** by electricity, gas, liquid fuel or heat exchanger

3.107

cleaning agent

water with or without the addition of a soluble or miscible chemical

3.108

pressure switch

device which, in response to varying fluid pressure, provides a controlling function at a pre-set value

3.109

flow switch

device which, in response to a varying rate of fluid flow, provides a controlling function at a pre-set value

3.110

primary safety control

control device that responds directly to flame properties sensing the presence of flame and, in event of ignition failure or unintentional flame extinguishment, causes safety shut down

NOTE **Primary safety controls** are also known as flame failure devices.

3.111

trigger gun

device that shuts off the supply of fluid through its outlet if the trigger is not held in its operating position

3.112

continuous ignition

ignition by an energy source that is continuously maintained throughout the time the burner is in service, whether the burner is firing or not

3.113

rated temperature

maximum temperature of the **cleaning agent** assigned by the manufacturer

3.114

pencil jet nozzle

nozzle that gives a concentrated, parallel water jet; also called needle jet nozzle, solid jet nozzle or 0 degree jet nozzle

3.115

water jetter

high-pressure pipe-cleaning device, consisting of a nozzle at the end of a high-pressure hose

A2 3.116

motorized cleaning head

accessory containing a motor that is supplied from the appliance and which is attached to the end of a hand-held hose or tube

NOTE The main cleaning head permanently attached is not regarded as a **motorized cleaning head**.

3.117

low pressure accessory

accessories to be connected to a high pressure cleaner equipped with one or more nozzles with an equivalent diameter exceeding 2 mm

NOTE 101 Nozzles with an equivalent diameter exceeding 2 mm used in a high pressure cleaner system are not considered to become clogged.

NOTE 102 Typical examples of **low pressure accessories** are washing brushes, foam nozzles, washing sponges.

3.118

hand-guided appliance

appliance to be moved on the floor while in operation, guided by a mechanically coupled handle

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.1 Addition:

The burner is operated at rated power. Appliances intended for operation at more than one rated power are additionally tested at the most disadvantageous power.

The burner-air adjustment, where provided, is regulated to establish the air/fuel ratio to produce the combustion characteristics recommended in the user instructions. The combustion characteristics may be specified by the appearance of the flame, the percentage of carbon dioxide (CO₂) in the flue gases, or by other characteristics.

On appliances designed for use with a flue pipe, a section of flue pipe is attached to the appliance. Flue gas determinations are taken in this flue pipe.

The draught is adjusted to that recommended in the instructions for use.

6 Classification

This clause of Part 1 is applicable except as follows.

6.1 Replacement:

Appliances shall be **class I**, **class II** or **class III** with respect to the protection against electric shock. However, **hand-held appliances** and hand-held parts of steam cleaners and high pressure cleaners shall be **class II** or **class III**.

Compliance is checked by inspection and by the relevant tests.

6.2 Replacement:

The appliances shall have a degree of protection against harmful ingress of water according to Table 101:

Table 101 – Degree of protection against harmful ingress of water

		Protection class (electric shock)	Protection degree (IEC 60529)
Steam cleaners	A ₁ for indoor use only	I-II	IPX4
		III	IPX3 A ₁
	for outdoor use	I-II-III	IP X5
	Hand-held parts	II	IPX7
		III	IP X3
High pressure cleaners	Hand-held appliances	II-III	IP X7
	Other types of appliances	I-II-III	IP X5
	Hand-held parts	II-III	IP X7

However, **fixed appliances** that are specified for installation in an independent room, where they will not be subject to spillage or splashing of water, shall be at least IPX0.

Compliance is checked by inspection and by the relevant tests.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.1 Addition:

- **rated pressure** in Pascal;
- **permissible pressure** in Pascal;
- maximum **rated flow** in litre per minute;
- maximum **rated temperature** where this is above 50 °C;
- serial number;
- year of production. The year of production may be indicated by the last two digits of the year;
- maximum inlet water pressure in Pascal if not given in the instruction manual;
- maximum power of the water heater in kW.

NOTE 101 For electric heaters the input power is specified.

For gas-fired or oil-fired heaters the output power is specified.

A yellow label with black lines showing the substance of the warning symbols in accordance with Figure 101 shall be permanently fixed to the appliance.

A2 All pressure hoses shall be marked with a pressure of at least the **permissible pressure** in megapascals and the maximum temperature in degrees Celsius and shall be marked with the name of the manufacturer and the date of production. These data may be coded.

NOTE 102 For low pressure accessories, no marking of the **permissible pressure** is necessary. **A2**

The **trigger gun** and the spray lance shall be marked with the **permissible pressure** in megapascals and the maximum temperature in degrees Celsius and with a mark giving the manufacturer of the **trigger gun**.

A2 NOTE 103 **A2** It is recommended that the safety valve should be marked with an identification.

When the surface of a flue or duct for exhaust gases from the heater exceeds a temperature rise of 60 K, a warning notice shall be fitted near to the hot surface stating

WARNING: Hot. Do not touch.

or displaying symbol No. 5041 of IEC 60417-1.

The height of the lettering shall be not less than 4 mm.

Steam cleaners shall be marked with symbol 5597 of IEC 60417-1.

A1 Steam cleaners shall be marked with symbol IEC 60417-5597. **A1**

A2 Appliances not intended to be connected to the potable water mains shall be marked with the symbol according to Figure 104. It is acceptable to show this symbol in monochrome colour.

Appliances that can be used indoors and are powered by internal combustion engines, except LPG-powered engines, shall be marked with the symbol according to Figure 105. It is acceptable to show this symbol in monochrome colour. **A2**

A1 7.6 Addition:

